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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,629

06/25/2003

Shigeki Watanabe

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03/04/2005

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EXAMINER

LEE, JOHN D

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/602,629

Applicant(s)

WATANABE, SHIGEKI

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,10 and 11 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,6,8 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 0603.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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Acknowledgement is made of a claim for foreign priority under 35 U.S.C. §§ 119 (a)-(d) or (f). The certified copy of the priority document has been received.

The eight (8) sheets of drawing filed with this application on June 25, 2003, are acceptable.

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim 5 is objected to because of the following informality. In lines 2-3 of this claim, there is no antecedent support for the term "the signal light and the probe light to be input into the optical AND gate" when this claim is dependent on claim 4. Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, and 7 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by U.S. Patent 5,150,248 to Alfano et al. Alfano et al discloses an optical AND gate (see close-up in Figure 6), the AND gate 93 including a nonlinear optical medium 101 which has input thereto signal light 107 having a first wavelength  $f_0$  and probe light 105 having a second wavelength  $f_p$  different from the first wavelength  $f_0$  and producing cross phase modulation of the probe light 105 with the signal light 107 to thereby output spectrally broadened light 111 (column 9, line 21). The Alfano et al AND gate 93 also includes an optical filter 103 for extracting light including a modulated component of the signal light. Because the filter 103 is a narrow-band

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filter (column 12, lines 54-59), it's passband is narrower than that of the spectrally broadened light.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5/1, 5/4, 6/1, 6/4, 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,150,248 to Alfano et al. Alfano et al does not specifically state that the probe light 105 and the signal light 107 are obtained by broadening the pulse width of signal light from an optical transmission line and an optical clock signal extracted from the optical transmission line, respectively. Alfano et al also does not specifically state that the nonlinear optical medium is a single-mode optical fiber. The fact, however, that the Alfano et al device is an integral part of an optical communications system, and considering that almost all optical communications systems are fiber-based and rely on clocking signals within the communication signals therein, it would certainly have been obvious to a person of ordinary skill in the art to have the probe light and the signal light of Alfano et al obtained in the manner just described, and to have the nonlinear optical medium be a single-mode optical fiber. Since the typical optical communications system includes a transmitter, a receiver, and an optical transmission line, this must be assumed to be the type of system in which the Alfano et al device is inserted. The claim 11 limitations would therefore have been obvious.

Claims 2, 3, 5/2, 5/3, 6/2, 6/3, 8, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the

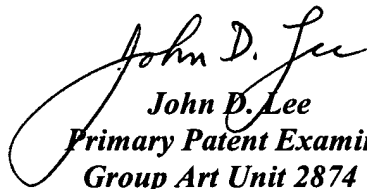
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limitations of the base claim and any intervening claims. Alfano et al, the closest prior art of record, does not disclose or suggest a *second* nonlinear optical medium which produces self phase modulation or cross phase modulation, along with a *second* optical filter, operating in the manner set forth in these claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,801,349 to Kim et al describes an all-optical AND gate using an SOA-based cross phase modulating wavelength converter.

The prior art document cited by applicant in the Information Disclosure Statement filed on June 25, 2003, has been considered and made of record. Note the attached initialed copy of form PTO-1449.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.

  
**John D. Lee**  
**Primary Patent Examiner**  
**Group Art Unit 2874**